

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A motor comprising
an armature (3) and a field element (2) which are rotatable relative to each other on a rotation axis (21) extending in a first direction (L), wherein
said armature (3) includes
an armature winding (7) which is placed at a distance in a second direction (D)
perpendicular to said first direction (L), from said rotation axis (21), and
said field element (2) includes:
a plurality of first yoke plates (41) each including one end which faces said armature winding (7) in said first direction (L) and the other end which does not face said armature winding (7) in said first direction (L), each of said plurality of first yoke plates (41) extending in said second direction (L); and
a magnetic-field creating magnet (5) which has a north pole joined to said other end of one of adjacent first yoke plates (41) of said plurality of first yoke plates (41), a south pole joined to said other end of the other of said adjacent first yoke plates (41), and a U-shaped magnetic path (4) which opens to said plurality of first yoke plates (41), said magnetic-field creating magnet (5) at least locally facing said armature winding (7) in said second direction (D).
2. (Currently Amended) The motor according to claim 1, wherein
said one ends of said adjacent first yoke plates (41) are connected to each other.
3. (Currently Amended) The motor according to claim 1, wherein
said other ends of said adjacent first yoke plates (41) are connected to each other such that a junction between said other ends of said adjacent first yoke plates (41) does not overlie a boundary between said north pole and said south pole.

4. (Currently Amended) The motor according to claim 1, wherein each of said plurality of first yoke plates (41) includes a linear outline (411) parallel to said second direction (D).
5. (Currently Amended) The motor according to claim 1, wherein an interval (461) between said adjacent first yoke plates (41) increases as a distance from said rotation axis (21) increases in said second direction (D).
6. (Currently Amended) The motor according to claim 5, wherein said interval (461) between said adjacent first yoke plates (41) non-linearly increases in proportion to said distance from said rotation axis (21).
7. (Currently Amended) The motor according to claim 1, wherein said magnetic-field creating magnet (5) is disc-shaped.
8. (Currently Amended) The motor according to claim 1, wherein said magnetic-field creating magnet (5) includes:
at least one permanent magnet (51) in which a north pole and a south pole are laid side by side in said first direction (L); and
a second yoke plate (59) which joins said north pole and said south pole of said permanent magnet on a side opposite to a side on which said plurality of first yoke plates (41) are placed.
9. (Currently Amended) The motor according to claim 1, wherein said magnetic-field creating magnet (5) includes:
at least two hexahedron-shaped permanent magnets (53) in each of which a north pole and a south pole are laid side by side in said first direction (L); and
a second yoke plate (59) which joins said south pole and said north pole of each of said permanent magnets (53) on a side opposite to a side on which said plurality of first yoke plates (41) are placed.

10. (Currently Amended) The motor according to claim 8, wherein said permanent magnet ~~(51, 53)~~ is a bonded-magnet.
11. (Currently Amended) The motor according to claim 10, wherein said permanent magnet ~~(51, 53)~~ is formed integrally with either said plurality of first yoke plates ~~(41)~~ or said second yoke plate ~~(59)~~ by injection molding.
12. (Currently Amended) The motor according to claim 8, wherein a width of said second yoke plate ~~(59)~~ extending in said second direction ~~(D)~~ is larger than a width of said permanent magnet ~~(51, 53)~~ extending in said second direction ~~(D)~~.
13. (Currently Amended) The motor according to claim 8, wherein a width of said second yoke plate ~~(59)~~ extending in said first direction ~~(L)~~ is larger than a width of said permanent magnet ~~(51, 53)~~ extending in said first direction ~~(L)~~.
14. (Currently Amended) The motor according to claim 8, wherein a portion extending along a portion of said permanent magnet ~~(51, 53)~~ where different polarities are adjacent has a larger width extending in said first direction ~~(L)~~ than said other portions in said second yoke plate ~~(59)~~.
15. (Currently Amended) The motor according to claim 1, wherein said armature ~~(3)~~ further includes a substrate ~~(76)~~ on which said armature winding ~~(7)~~ is placed.
16. (Currently Amended) The motor according to claim 15, wherein said armature winding ~~(7)~~ is placed on each of surfaces of said substrate ~~(76)~~ which are opposite to each other in said first direction ~~(L)~~.
17. (Currently Amended) The motor according to claim 16, wherein said armature winding ~~(7)~~ placed on one of said surfaces of said substrate ~~(76)~~ and said armature winding ~~(7)~~ placed on the other of said surfaces of said substrate ~~(76)~~ are

misaligned with each other in a rotation direction (~~R~~) of said field element (~~2~~) which is defined based on said armature (~~3~~).

18. (Currently Amended) The motor according to claim 15, wherein
said armature winding (~~7~~) is a flat coil in which a conductor is formed by a photolithographic process.
19. (Currently Amended) The motor according to claim 1, wherein
said armature (~~3~~) and said field element (~~2~~) are paired to form one motor set, and
a plurality of motor sets are connected to be arranged in said first direction (~~L~~), said plurality of motor sets being centered on said rotation axis (~~21~~) in common.
20. (Currently Amended) The motor according to claim 19, wherein
said armature windings (~~7~~) respectively included in said plurality of motor sets are misaligned with one another in a rotation direction (~~R~~) of said field element (~~2~~) which is defined based on said armature (~~3~~).
21. (Currently Amended) The motor according to claim 1, wherein
said armature winding (~~7~~) is placed closer to said rotation axis (~~21~~) than said magnetic-field creating magnet (~~5~~), and
said field element (~~2~~) and another field element (~~2~~) similar to said field element (~~2~~) are connected to each other to be arranged in said first direction (~~L~~) with said armature (~~3~~) being interposed therebetween, said field elements (~~2~~) being centered on said rotation axis (~~21~~) in common.
22. (Currently Amended) The motor according to claim 1, wherein
each of said first yoke plates (~~41~~) includes a first flat portion (~~41a~~) which forms an air gap (~~74~~) in a space between said first flat portion (~~41a~~) and said armature winding (~~7~~), and a second flat portion (~~41b~~) connected to said first flat portion (~~41a~~), and
said first flat portion (~~41a~~) is placed closer to said armature winding (~~7~~) than said second flat portion (~~41b~~) in said first direction (~~L~~).

23. (Currently Amended) The motor according to claim 1, wherein
said armature (3) further includes at least one position detection sensor (6) for
detecting a position of a magnetic pole of said magnetic-field creating magnet (5), and
said position detection sensor (6) is placed in a substantially central region of said
armature winding (7).

24. (Currently Amended) The motor according to claim 1, wherein
said armature (3) further includes at least one position detection sensor (6) for
detecting a position of a magnetic pole of said magnetic-field creating magnet (5), and
said position detection sensor (6) is displaced with respect to a line (41) extending
from said rotation axis (21) to a substantially central region of said armature winding (7) in a
direction opposite to a rotation direction (R) of said field element (2) which is defined based
on said armature (3).

25. (Currently Amended) The motor according to claim 23, further comprising
drive means for supplying either rectangular-wave or sinusoidal drive current to
said armature winding (7) based on an output of said position detection sensor (6).

26. (Currently Amended) The motor according to claim 1, further comprising:
means for detecting an induced voltage of said armature winding (7);
means for estimating a position of a magnetic pole of said magnetic-field creating
magnet (5) from said induced voltage; and
drive means for supplying a drive current based on said estimated position of said
magnetic pole of said magnetic-field creating magnet (5) to said armature winding (7).

27. (Currently Amended) The motor according to claim 26, wherein
said drive means sets a phase of said drive current forward to a phase of said
induced voltage.

28. (Currently Amended) A motor comprising:

an armature (3) including an armature winding (7) and a first yoke plate (31) which are stacked in one direction (L); and

a field element (2) which includes a magnetic-field creating magnet (5) having magnetic poles which are laid side by side in said one direction (L) and are different from each other in polarity, said field element (2) being rotatable relative to said armature on a rotation axis (21) extending in said one direction (L), wherein

said first yoke plate (31) includes a non-conductive part (241, 242) extending in a rotation direction (R) of said field element (2).

29. (Currently Amended) The motor according to claim 28, wherein
said non-conductive part (241, 242) includes a plurality of slits (241) which are arranged along a circle centered on said rotation axis (21).

30. (Currently Amended) The motor according to claim 29, wherein
said plurality of slits (241) are arranged such that at least one of said plurality of slits (241) is present in a position at every angle along said rotation direction (R) in a range between said rotation axis (21) and a periphery of said first yoke plate (31).

31. (Currently Amended) The motor according to claim 28, wherein
said first yoke plate (31) includes a plurality of magnetic plates (31a, 31b, 31c, 31d) having a boundary extending along at least one circle centered on said rotation axis (21), and
said non-conductive part (241, 242) includes said boundary (242) between said plurality of magnetic plates.

32. (Currently Amended) The motor according to claim 31, wherein
an insulating coating is provided on said boundary (242) between said plurality of magnetic plates.

33. (Currently Amended) The motor according to claim 28, wherein

said armature winding (7) and said magnetic-field creating magnet (5) overlap each other in a direction (D) extending from said rotation axis (21) toward a periphery of said first yoke plate (31).

34. (Currently Amended) The motor according to claim 33, wherein

said magnetic-field creating magnet (5) includes a plurality of subsidiary magnets (52) each having magnetic poles which are laid side by side in said one direction and are different from each other in polarity,

said plurality of subsidiary magnets (52) are arranged such that different polarities are alternately provided around said rotation axis (21) and a boundary between said different polarities extends in said direction extending toward said periphery,

said field element (2) includes:

a second yoke plate (2) which includes a first portion (41a) facing said armature winding (7) in said one direction (L) and a second portion (41b) connected to one side of said magnetic-field creating magnet (5) which is opposite to a side on which said armature is placed, said second yoke plate (4) being placed orthogonally to said rotation axis (21); and

a third yoke plate (59) which joins said different polarities provided on said side of said magnetic-field creating magnet (5) on which said armature is placed, and

said second yoke plate (4) includes a non-magnetic part (46) extending in said direction (D) extending toward said periphery on a boundary between said plurality of subsidiary magnets (52).

35. (Currently Amended) A blower comprising:

said motor recited in ~~any of claims~~ claim 1 through 34; and
a fan (91) which is rotated by said motor.

36. (Currently Amended) A compressor comprising

said motor recited in ~~any of claims~~ claim 1 through 34; and
a compressing mechanism (96) which is rotated by said motor.

37. (Currently Amended) An air conditioner comprising:

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said motor recited in ~~any of claims~~ claim 1 through 34; and
a rotation driving mechanism which is rotated by said motor.